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THE PROBLEM OF THINGS IN THEMSELVES

by

Dissertation by

DURANT DRAKE

SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY IN THE FACULTY OF
PHILOSOPHY, COLUMBIA UNIVERSITY.

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THE PROBLEM OF THINGS IN THEMSELVES

INTRODUCTORY

By the 'problem of things in themselves' I mean simply the problem as to the existence and nature of things as they are for themselves, independently of a perceiver. It is a problem because, in the first place, the very existence of things independently of a perceiver (or, outside of experience, human and super-human) has been denied by some, and seems to demand argument; and in the second place, because those who believe in their existence have ascribed to them, as they exist outside of our experience, all sorts of varying natures. The term 'things in themselves' does not rightly connote an existence of a different sort from that which the data of our experience have, or from that which we naturally ascribe to unperceived things. That is a matter for argument, one way or the other. The table-as-it-exists-for-itself-when-no-one-sees-it may have, as we naively suppose it to have, the same qualities which it has as a datum of my experience—brownness, smoothness, etc. But even so, has it not other, *unperceived* qualities? Would an analysis of the perception-datum exhaust the analysis of the thing as it exists for itself?

When we study the mechanism of perception new light is thrown on the matter. We discover that some, at least, of the qualities of our perception-data seem to be dependent on the nature of our organisms and to vary with them. How then can they be qualities of the things out there beyond our organisms? Do things have in themselves some but not all of the qualities they have in our experience?

Here are two possibilities: namely, that things have in themselves more qualities, or that they have fewer qualities, than can be found in our perceptions of them. A third possibility is that they have none of the qualities of our perceptions of them, but other, different qualities; and that their correspondence with our perceptions is a merely formal one—a certain definite quality

of the thing corresponding to a certain definite quality of the perception, etc.

But when one has gone so far a fourth possibility is likely to suggest itself—namely, that things have no existence at all in themselves, and that all that exists is just our evanescent perception-data, plus such other data as thoughts, wishes, and feelings—data which together make up what is commonly called a human consciousness; and then, other similar consciousnesses, and perhaps superhuman consciousnesses.

The history of thought is full of such varying attitudes toward the existence and nature of things in themselves, and we can do no more than glance at a few of the better known views in prefacing our positive argument.

The first recorded distinction between things as experienced and things in themselves was made by Democritus. The atoms which made up his universe had various sizes and shapes, but not color or smoothness or any of the so-called secondary qualities; these qualities being produced in us by the variations in size and shape. This doctrine reappeared in Epicurus and Lucretius. But meanwhile, by Protagoras and the Sceptics, the relativity of all perceptual qualities had been asserted, with a consequent complete skepticism as to things in themselves.

Plato and Aristotle swung thought in other directions, and not until the time of Descartes and Hobbes was the distinction reasserted. Both of these thinkers stripped matter of the secondary qualities. Hobbes actually anticipated the modern view of things by declaring: "All the qualities called sensible are, in the object that causeth them, but so many motions of the matter by which it presseth on our organs diversely."

Locke kept to this distinction. But again reflection moved on to a complete skepticism as to things in themselves. Berkeley insisted that the primary qualities—extension, shape, motion—are just as truly qualities of our experience as the secondary qualities; and that we have no reason to believe in the existence of 'things' at all beyond that experience. On the contrary, what exists beyond our fragmentary experience is—the mind of God, causing our experiences to appear in their definite and well-known order in our minds. Hume was as skeptical of a Divine Mind in the place of Things as he was of the Things themselves. He

agreed with Berkeley that our knowledge is limited to our experience; as to whether things exist beyond our experience we cannot know. This was likewise the attitude of Mill, who showed that all our physical knowledge can be interpreted as a knowledge of possible sensations, and their order; we have no way of getting beyond that sort of knowledge to a knowledge of things in themselves, if there be any such things.

Meanwhile Spinoza, impressed by the empirical concomitance of conscious-events with brain-events, a relation mysterious and unexplained, sought to solve this particular mystery by attributing it to all reality. The universal 'substance' has throughout an infinite number of 'attributes,' of which extension and thought are two. What exists outside of our experience has thus the material qualities, but also mental qualities. They are but two ways in which we apprehend the One Substance.

Leibniz, on the contrary, held that the material properties of things exist only as our 'confused perception' of them; in themselves they have not even extension. What exists in them is a dim swooning life akin to our mental life only lower in the scale. He may be called the first panpsychist.

Kant held that all the qualities and forms of our experience, even space and time, are the result of our own natures; and that we only know of things outside of experience that they exist. They are causes which coöperate with our natures to produce experience, and are therefore presumably very different from experience; they are a mysterious and unknowable sort of reality. They are *noumena*, as contrasted with *phenomena*. The influence of this point of view is discernible in many quarters since Kant's time. These mysterious things-in-themselves form, for instance, the capstone of Spencer's philosophy, being there capitalized into the Unknowable.

They were, however, only a sort of extraneous appendage to the Kantian philosophy (which was essentially an analysis of experience), and were thrown overboard posthaste by his successors. The German transcendental philosophy and its successors in England and America hold that all reality is the experience of the Absolute Ego; there are no 'things' at all, except as data in this Absolute experience.

Herbart marks the reaction against this transcendentalism.

The world of appearances is self-contradictory. But appearances imply realities of which they are appearances; and in this world of *Realen* the contradictions do not exist. Things are composed of numbers of these *Realen*, which are simple, inextended, immutable beings.

Schopenhauer also held out for Kant's *Dinge an sich*. The belief in their existence seemed to him irresistible; and tho we cannot have direct insight into the sort of existence they have for themselves, we do know that the world is their image or representation. Now in our own inner life we have given the existence-for-itself of which our body is the outward image; and we can infer that the reality behind the world-image is analogous with what is fundamental in this inner life of ours. But the essence of our inner life is will; this then is the essence of all reality as it is in itself.

Fechner harks back rather to Spinoza, and speaks as if material and mental qualities coexisted throughout the universe—which however is not One Substance, but a hierarchy of existences. Animals and plants have psychic life. So has the earth. So has the solar system, and finally the universe as a whole. The material and the mental everywhere coexist; they are two aspects of one reality, like the convex and concave aspects of one and the same curve. A number of other writers follow Fechner more or less, among them Paulsen (who shows strongly the influence of Schopenhauer and proceeds through panparallelism to panpsychism), and Haeckel, who calls his doctrine monism.

To go back to Britain: Clifford, influenced by Spinoza, carried the psycho-physical concomitance on down by analogy, through the animal and vegetable kingdoms, to the inorganic realm. Then, being a student of Hume and Mill, and realizing fully that the material qualities which we attribute to things are but qualities of our perceptions of them, he reached a panpsychic position somewhat similar to that of Leibniz or Schopenhauer. The reality of the brain-consciousness concomitance is consciousness; the 'brain' being but a name for the possible perceptions of this reality in another consciousness. Similarly, all the material qualities we attribute to other things are but our possible perceptions of them; in themselves they are mind-dust—a sort of reality which attains higher and higher forms as we ascend the organic scale and in man becomes consciousness.

This theory has been worked out from Clifford's hints in two brilliant American books, written independently of each other: Dr. Prince's *Nature of Mind and Human Automatism* and Professor Strong's *Why the Mind Has a Body*. The latter, the more careful and elaborate, proceeds by establishing a presumption in favor of parallelism as the most plausible psycho-physical theory, and then argues for the truth of the position of the British idealists, that all the 'material' qualities we know are qualities of our experience. The world of our experience is, however, a fragmentary world; there is no explanation of the order of its elements without the belief in a world of things-in-themselves 'behind' it, a continuous world that causes these sensations in us when our sense-organs permit. These things-in-themselves are homogeneous with our consciousness, and of a sub-mental nature.

In a number of modern writers a similar theory is sketched or postulated. But it is usually difficult to ascertain whether the doctrine is that of the concomitance of physical and psychical qualities in things, or is a pure panpsychism, ascribing only mental qualities to things themselves and putting the material qualities into the perceptions of things—where they become mental qualities also. Among these modern writers are Romanes (who would lump the reality behind things into a world-soul), Stout, Lloyd Morgan, and Marshall. Very recently Professor Heymans of Groningen has argued ably for panpsychism (which he calls *psychische Monismus*), in a manner somewhat similar to Professor Strong's, reaching however the belief of Romanes and Fechner and Paulsen in a world-soul.

Now panpsychism seems to me to express the truth of the matter essentially; and many of the arguments for it, particularly the careful reasoning of Professor Strong, seem to me sound. But the name 'panpsychism,' the terminology used by the panpsychists, and their general course of argument, seem to me unfortunate, and responsible for the comparatively slight attention that has been won for the theory. 'Panpsychism' seems to take the substance out of things and leave them a 'merely mental' existence; all the language used seems to imply a dualism of mind and matter, and then to deny the reality of matter. Further, the theory is reached by establishing subjective idealism as against realism, and then by supplementing this idealism, filling out the

gaps in its world, with psychic existences. It is a sort of pluralistic idealism. But today the philosophic world has pretty largely moved away from idealism to realism, and thus dissents at the outset. We have a strong neo-realistic school which holds that things have in themselves the very material qualities they have in our perception; they deny the idealistic point of view *in toto*, and need to be reckoned with in another way.

It seems to me that the essential truth of panpsychism is not dependent at all upon a conversion to the idealistic point of view; that a better way to ascertain the nature of things in themselves would be to confess the inadequacy of subjective idealism at the outset and accept at its face value the world that science gives us—that is, as a world existing independently of consciousness; and then on a realistic basis, and in realistic language, to indicate the evidence that leads to this particular theory of the nature of the things that make up the universe. Such an attempt is hinted at in the opening paragraph of Professor Strong's later essay called *Substitutionalism*. There he abandons his idealistic language and speaks of 'physical things' not as 'permanent possibilities of sensation,' but as the actual independently existing constituents of the world-order. He asks the reader to make "a certain assumption," namely, "that our perceptive experiences are not . . . in the part or place of the order which they *reveal*, but in a place represented by that of the brain-events with which they are (as we say) correlated. The experiences, in other words, *are* the brain-events, considered in themselves; and all other physical events, in themselves, are what may be called infra-experiences—something of like nature with human experiences, only far less highly organized." This hypothesis "puts the experiences in the same world with the object, only in a different place—in the brain, instead of in the object perceived."

Professor Strong has not as yet, however, developed an exposition of his theory in this realistic language, nor with particular reference to the point here stated, of the *place* of perceptive data in the world-order. This point seems to me the crux of the whole matter; and the purpose of this dissertation is to outline the chain of argument by which, studying the facts of the process of perception in a purely realistic manner, i.e., by the concepts of common-sense and ordinary scientific usage, we may be led to that

conception of the nature of things in themselves which Clifford sketched; and then to make some further suggestions as to their nature suggested by the work of Prince and Strong and Heymans, but not definitely formulated by them.

We shall refrain throughout from resting on the authority of historic metaphysical systems, and seek to avoid begging any question by leaning on the connotations of commonly accepted terminology. We shall thus escape the snare of misrepresenting, and drawing unfair prestige, from philosophers who would perhaps not really sympathize with the use made of their language, and the equally grave danger of trusting to the conceptions that lie implicit in so many common words. The language used will thus at times be awkward and unidiomatic; but it will, it is hoped, be exacter and less ambiguous. Similarly, we shall refrain from criticising other theories. It is impossible in the space which we could devote to it to do justice to them or to answer the rebuttals which their adherents would make to our objections. The attempt will be made instead to examine experience afresh and without preconceptions; to point out the need of theories, as principles of explanation, which can never be verified, as scientific theories are verified, because we necessarily lack the means of verification; and to show that among these necessary metaphysical or extrascientific theories are that which postulates an existence of things in themselves and that which reveals their nature as homogeneous with consciousness but without its complexity and organic unity.

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I. EXPERIENCE AND THE UNIVERSE

Before we ask what sort of existence things have in themselves we must ask whether they have any existence in themselves. The history of thought which we have traced shows that it is very possible for acute thinkers to hold that the world of things exists in no other sense than as a 'construct' in our minds, as a vision of the experiences that would accrue under all possible conditions. What actually exists is—just the data of experience and nothing more. Absent objects are but potential experiences of ours; they are nothing for themselves. The prevalence of such opinions should teach us that we cannot begin reflection by assuming the existence of the universe in the common sense manner. At whatever conclusions we may arrive, we must start with what we find actually given, actually present, and justify our further beliefs.

What then do I find *given*? What are the data from which I can unquestionably start? What I find given *now* is—well, whatever happens to exist now within the horizon of my experience. It is difficult to find words that shall not imply more than I wish to denote. 'Horizon' seems to imply something beyond the horizon. 'My' experience seems to imply some one else's experience. But perhaps there is nothing beyond this 'horizon,' beyond what I call 'my' experience. Undoubtedly I believe in the existence of something beyond, but that *belief* is a fact within my experience, and the facts *believed in*, which it points to, may not exist. That is, the belief, tho a fact, may be an illusion; its existence here and now may be all there is to it. On the other hand, there *may* be facts beyond this 'horizon,' facts not given among these data, but given among other data elsewhere. Not only may my belief in the king of England be a fact given, one of my primary data, but the king of England himself, a quite different reality, may actually exist tho not given among these data. Other existences there may be, simultaneous with these data I am starting from, but they are not present with these data, as these data are present with one another. I may doubt the existence of all other data, I cannot doubt these. I may believe in other existences, I may

have good grounds for such a belief; but all I *know* to exist, in the strictest sense, is—just these data now present. This much of existence I know at first hand, now.

It is important to realize sharply the fact that here are a certain number of data—or perhaps some would prefer to say one datum which can be analyzed into many elements—actually *present*. Either this is all there is to reality, or else other realities exist but do not exist in the relation of *being present with* these data as they are present with one another. If the universe we all practically believe in does exist, then I can say that all that I have given (or, all that is given here) is a very small portion of the universe, a small field. What lies within that field I know directly to exist; what lies beyond it I can only infer to exist. All inference must start ultimately from the immediate. And what I have given after I make the inference is not those inferred outer realities, it is beliefs in them, conceptions of them—as far as A is from Z from the same facts as those which make up the rich teeming universe they are conceptions *of*. Unless then I am what is technically called a solipsist, my experience does not coincide with the universe I believe in. If I should analyze my experience (i.e. these data *present*) ever so thoroughly, I should not find there the *existence* of the king of England. At most moments indeed I should find there not even a belief or conception or imagination of his existence, no reference to him at all. Yet I do believe, when I think about the matter, that he exists, beyond this field of experience; exists not only when I am thinking of him and believing in his existence, but all the time; existed before I ever thought of him, and will exist perhaps when nothing that can be called my experience any longer exists.

But now, what right have I to believe in the existence of anything beyond 'my' experience—these actually present data? I have this right, that the belief in a universe beyond 'my' experience is the only belief which adequately *explains* the facts of 'my' experience. There is certainly no scientific proof that a universe exists, that anything more than these present data exist. If a man refuses to believe in anything beyond the data he finds present, he cannot be dislodged from his position by anything but laughter. We can only show him that if he is to be consistent in his skepticism he must refuse to believe in

anything beyond what he actually finds present. He never actually finds present anything beyond the *now* present data; the belief in his own past experience is as truly a transcendent belief as that in the existence of the other side of the earth. He has indeed these facts present which he calls memories. But they may conceivably be illusions; i.e. their existence does not necessarily imply the existence of the earlier facts they seem to refer to. In brief, the existence of one's own past experience, of other people's experiences, and of things outside of any one's experience, stand on the same footing. To believe in the first is just as truly to transcend the given, and to transcend the possibility of scientific verification, as to believe in the last; and he who denies the last has no more justification for his denial than he who should deny the first.

For metaphysical theories are necessary if we are to explain anything. All three of these primary metaphysical beliefs have very much in the constitution of the very 'now' of a given experience to support them, and we can make all three leaps into the beyond with practically equal justification. The evidence is indeed in all three cases as overwhelming as in the nature of the case it well could be. If it is not absolutely coercive logically, we must not chafe at that inevitable limitation or hope to find any other beliefs which shall be more coercive. For no metaphysical theories can we find scientific, i.e. coercive, proof. All any theory of existence can do is to fit known facts; and we only claim for ours that it thus fits them, as no other does. Let us take up, then, each of the first three great steps in explanation of present data, and show what facts they are invoked to explain.

In the first place, I believe in my own past experience; i.e., in data that were once given, present, as these data are now. I believe that my past experiences have been continuous with one another and have led up continuously to this present experience. I thus add to my conception of a 'field of experience' (which is a name for the data I find actually now present) that of a 'stream of experience' existing in time, of which this present 'field' is the terminal plane. I believe that this stream will flow on into what I call the future; so I may call the present field a cross-section of the stream.

Now the justification of this belief is not in the mere existence of facts which I call memories; for memories might deceive me. It is perfectly conceivable that the facts they seem to refer to never really existed. But there would then be no *explanation* of these memory facts, or for all our acts and thoughts which in the present seem to depend on and verify the truth to which memory points. I act, that is, not only as if my memory were a present fact, but as if the fact it refers to, the past fact, had been real in the past. I act on anticipation as if the future facts it refers to were going to be real facts in the future. I find I act wisely in so doing. Of course, it might be objected that the fact of the correlation of memories and acts, and the consequent verification of memory, consists in a set of facts most of which we can only anticipate or remember at a given moment. And since these memories and anticipations may be illusions, we have not got forward in our argument. So be it. But the point is that this now complex set of present facts, including these memories and anticipations, finds an adequate explanation in the postulate of a real past and future, and of experience as a stream extending from the past through the present into the future. If any one insists that explanation is an illegitimate category, that present facts just exist, and that is all there is to it, he cannot be refuted. As a matter of fact, however, every one does believe in the past and (barring the sudden end of everything) in the future; and if this belief is true, it does beautifully explain what every one finds in his present experience.

In very similar case is the belief in other fields of experience contemporaneous with this present field. I believe not only in 'my' stream of experience, but in 'other people's' similar streams of experience. In ordinary language, I believe not only in my own existence, but in that of other people. It is true that naive thought is apt to mean something more by 'my existence' than the existence of a present field of data, changing in time. But putting aside the question of the existence of 'souls' or 'egos' or 'subjects,' common thought means by 'my existence,' by the existence of 'my mind,' or 'consciousness,' *at least* the existence of this present field of data; and by 'other people's existence,' other 'minds' or 'consciousnesses,' it means at least the existence of other more or less similar fields of data, simul-

taneous with this field, but not present with it, not a part of the same field. There is nothing in this common usage to indicate that mind or consciousness is a substance or kind of existence different from some other substance or kind of existence. A consciousness is one of these small fields of data-present-together, of which each of us has, or is, a sample—as contrasted with the universe, which is very much greater in extent, and composed, apparently, of data not all present together.

It must not be forgotten that all that I have given is one such field of data; the belief in other fields is an inference. It is an inference which we all make instinctively, as we infer our own past existence. But it cannot be logically proved, and its justification to reason lies also in the fact that it is the only adequate explanation of the peculiarities of the given field of data. The accepted evidence for the existence of other fields is something as follows, when phrased in the cautious terminology we are using. I find within my field one constant factor, 'my body.' The very existence of my field seems somehow to be peculiarly dependent upon or related to this factor in it. Then I find intermittently within my field other similar data, 'other bodies.' Dependent upon these data or somehow related to them are supposed to be other whole fields of data, not present with mine. When certain data are present within my field the datum I call 'my body' goes through certain changes; therefore when these 'other bodies' go through similar changes, I am to infer the existence of similar data in other fields of data not present here.

It is apparent that there is no conclusive argument here. It amounts to saying that because there is one permanent group of data within the present field, whenever I find other more or less similar groups of data within it, I can infer the existence outside of the present field of other whole fields of data. This is more of a leap than logic would warrant! It is very much more of a leap than the simpler belief in 'things,' in the existence of other data beyond this present field. Many present data are exactly similar to past data of this field, reappear in the same relative position among the other data, and fulfil the same functions; the inference that they are in some sense the same data, now in and now out of this field, is much simpler than the complicated and logically dubious inference we have been considering. As a

matter of history, the argument we have tried to state according to its strict logical worth for those who have no prior belief in data outside the present field, is always expressed even by those who profess no such prior belief in terms of such a belief. Our consciousness is intimately related to our bodies; therefore other bodies, so similar to ours in structure and actions, may be assumed to have related to them similar consciousnesses. The 'consciousness' in this argument is equivalent to our phrase, 'the present field,' and therefore includes the 'my body' and 'other body' elements in it. The only plausibility of the argument, therefore, rests on the belief in *other* facts, a body-outside-of-this-field, outside of 'consciousness,' to which this field or consciousness is related, and other bodies outside of this field, to which other fields of data, or consciousnesses, are attached. In short, the bridge between the presence of one consciousness and the belief in other consciousnesses is the belief in things outside of consciousness. And it would be illogical in the extreme to hold the belief in other minds or consciousnesses justified and not to hold the belief in things outside of these consciousnesses, data outside of these fields, justified.

It is perfectly possible, as we said in the case of the belief in one's own past, to insist that the demand for explanation is illegitimate. But in that case one will never justify the belief in one's own past or in other minds any more than the belief in things outside of these minds. If one admits the legitimacy of holding a belief because it offers an explanation of the facts, one can justify all these beliefs. Either a belief only in what is 'here' and 'now' or—to be consistent—a belief in the existence outside of this 'here' and 'now' of the whole universe of common sense.

What are the facts in the present field which the belief in a universe explains? If that belief is true it explains the following facts, otherwise inexplicable.

1) The fact that while 'ideas' and 'emotions' follow other data preëxisting in the field according to fairly well traceable laws (or habits), are largely modifiable at will, and depend upon the general nature of the field at the time, those other data which are called sometimes 'things' and sometimes 'sensations' act quite differently. They jump into the field, as it were, abrupt and unrelated to anything else there preëxisting. The strongest willing

cannot directly exorcise them; so long as certain other events do not happen, e.g. the shutting of our eyes (by which I mean only the appearance of a certain definite event within the field), they persist. We are, so to speak, at their mercy. These 'objective data' (as we may call them, in a purely denotative way) certainly seem to be subject to other laws than those of the interworkings of the data within my field. All this is quite explicable on a realistic basis. If a world of things exists, it is easy to see that it may force itself into this field, so to speak. What exists here is the result of what exists without, this field is what it is from moment to moment according to the events going on without.

Indeed, this outer world seems at times to put an end to a field or consciousness—either temporarily, as when one is stunned, or permanently, as at death. If a bullet, e.g., is a phase of my field of data, how explain the fact that it can immediately extinguish the whole field, except by supposing that it is, or represents, a fact in an outer world? Even if it only causes pain, why should my field suddenly manifest this terrible phase, so unprepared for by its previous contents, unless it is affected from without? To see a man freezing to death, or writhing in the grip of a serpent, or from the effects of poison taken, would be to be sure that he was really in the grip of a reality outside of his own field or consciousness.

2) The second set of facts which the belief in a universe explains is that of the physical *order* or *pattern*. Our fragmentary 'objective data' do not piece together into a coherent whole. But by filling them out in imagination, i.e. with those other data called 'ideas,' we can construct a complete objective world, so complete and definite that we can predict from our construction in the greatest detail what data will exist in our field at definite future times. There are no objective data in our field connecting these fragments; but we can take the fragments and plot their curve, as mathematicians say, and find an order into which each actual and every possible future datum will fit. This order is permanent and independent of the actual existence within our field of any of its fragments. Ideas and wishes are evanescent, never quite repeating themselves, and forming no objective order. But these objective data recur at their proper place in the order with the inevitable regularity and accuracy of clock-work. They seem not to spring up spontaneously within our field, but to come to it out of this order.

3) A third set of facts is those which show that our objective data come in groups, a 'sight' being a sign to us of a possible 'touch-datum,' etc. It is difficult to explain this except on the assumption that they are different qualities of, or effects of, the same 'things,' which have an existence independently of the appearance of these data within the field. Similarly the apparent fact that all our fields of data (if I grant the existence of others besides my own) have their 'objective' data belonging to the *same* order. When I have certain data within my field, (as when I chop down a tree), certain similar data appear within your field, and fit into the same conceived world-order. No one person ever had more than an insignificant fraction of the data of this conceived order; but science, finding that all people's data, (i.e. the data existing in all these fields) belong to the same conceived order, pieces them together and makes up the picture of a single coherent universe.

4) We need not dwell on such further significant facts as those of the physiology of perception—which are meaningless if there is no outer world. Of what meaning, e.g., are these data which I call 'eyes,' unless on the supposition that there are real eyes, existing whether or not these eye-data are at the moment existing within the field, which are a real means of bringing news of an outer world? We need not dwell on the facts of cosmic history, which are without meaning if there was no universe before the time when human fields of data or consciousnesses existed. We need not dwell on the fact that if these human fields of data are all that exist, then chairs and houses pop into existence when we open our eyes and pop out of existence when we close them. It is conceivable indeed that we should properly call these chairs and houses 'groups of sensations,' and that these groups of sensations do pop in and out of existence. But the point is, there is no explanation then of that dependableness which they actually have, or of the changes which have apparently gone on in things during the interval while they are 'popped out' of existence. We need not dwell on the fact that, if we grant the existence of simultaneous consciousnesses, which influence one another, there is a gap between the cause in the one consciousness and its effect in another. During a certain interval, according to science, æther-waves or some other physical facts exist. If we refuse to admit the real existence of physical facts not included within the fields,

or consciousnesses, then *nothing* exists during this time-gap, i.e. nothing of this causal chain. The chain between the two consciousnesses is broken. A cause exists in one consciousness, then nothing exists, then the effect exists in the other consciousness. Only the belief in the real existence of the physical universe bridges this gap.

It is not enough to admit all these facts and then say that the universe exists, yes, but 'as a construct,' as 'permanent possibilities of sensation' (i.e. of facts within the fields). If the universe exists *only* as a construct, as a set of possibilities, then *nothing at all* exists save the consciousnesses or fields, which are far from making up the universe which is necessary to explain the facts we have recapitulated. If while being 'possibilities of sensation' they are likewise real present existences, well and good, our point is granted. There is no half-way position. Either the consciousnesses alone exist, with their actual and potential data; or the universe exists in its entirety. In the first case the wiping out of consciousnesses would leave nothing behind; in the second case it would leave all the rest of the universe behind. Only the second belief *explains* the facts we have called attention to. And only this belief furnishes the bridge for assuming the existence of other consciousnesses from the one present. Our alternative is then sharp. Either a thoroughgoing refusal to try to explain the present data; or a thoroughgoing and consistent willingness to explain them, which results in the conviction that the whole universe of science exists, not only in the sense of possibilities of data within this field and others, but *for itself*, i.e., independently of this field or others, and whether or not they should be wiped out of existence.

II. THINGS *vs.* PERCEPTIONS

We have now answered our first question and assured ourselves that things do have an existence in themselves. We began by accepting only the existence of the data now discoverably present, and saw that unless we were to reject the principle of explanation altogether, we are irresistibly led to the belief that the whole universe of which science tells us really exists for itself, i.e., whether or no our individual consciousnesses, or fields of present data, were to be wiped out. Such a destruction might mean a wiping out of bits

of the universe; but only, if science and our ordinary observation can be trusted, of small bits. And it is not clear that the destruction of these *fields* of data, as fields, would imply at all the destruction of the data which make up those fields; these data now present-together in a field might cease to be present-together and yet all continue to exist, so that the universe would not lose a single item, but only a certain relation between certain items.

We are as yet no farther along than common sense. We began below ground, as it were, building up our foundations, so as to be sure not to rest on illegitimate assumptions. Now we have reached the level of ordinary life; but with a securer sense of our right to be there. We may proceed to note a situation in our universe which demands a further unverifiable, i.e. 'metaphysical,' theory for its explanation. That situation is, in a word, this: the data of perception are, discoverably, not numerically identical with the 'things' of physical science. There seems to be no *place* in the world of science for them. Science studies the 'stimuli,' the causes, that is, of our data of perception; it traces the mechanism by which the causal influence is carried from the 'things,' the causes, to a human brain; it finds there certain brain-events that are effects of the 'things,' and have a certain degree of point by point correspondence with them—that is, there is a concomitant variation between the outer 'thing' and the brain-event, so that a change in the one produces (to a certain extent) a change in the other. It then traces an ensuing physical process out through the motor nerves to some physical action in the world. But *nowhere in this chain of events does it find the data of perception.*

These data are not the 'things,' for they exist at a later moment than, not simultaneously with, the things which they 'reveal,' of which they are perceptions. They are a different existence from the things, and not dependent upon the existence of the things at the moment of their existence. The things themselves are the stimuli of the perceptions, the causes of which the perception-data are effects; they are separated from those perception-data by a measurable interval of time. The star which sends æther-waves to me, and is made up of atoms in motion, is absolutely another existence from this set of qualities that make up my star-datum. There is no "idealism" in this. It is one of the facts of the make-up of our realistic universe.

Let us examine this situation. This star-datum exists now. But science tells me that the star of which it speaks is so far off that it takes thousands of years for the æther-waves to carry news of it to me. That star then may have been dissipated into wide-scattered vapor, or burned out, and so ceased to exist as a shining star, many years ago. In some cases some such thing no doubt actually happens, as in the case of 'new stars.' A star existed, trillions of miles away, thousands of years ago. It has utterly ceased to exist now. But this star-datum, this twinkling point, exists now. In a sense, no doubt, we may call both events "the same star." But they are not numerically the same facts. One fact existed thousands of years ago, the other exists now.

This is a striking instance, because of the length of the time-gap. But of course exactly the same thing is true of all perceptions. The 'thing' of science, the cause of the perception-fact, exists always earlier in time than the perception-fact. A man is driving a nail. I am a hundred feet away. A fact exists at the point where the hammer hits the nail. But at the time when my perception-fact exists (this sharp metallic sound), that fact at the nail-point has ceased to exist. The hammer is raised there, there is no agitation of air-waves. If you are standing two hundred feet away, then your datum of perception, again a sharp metallic sound, exists at a still later moment, when both the fact at the nail-point and my sound-datum have ceased to exist.

This then, generalized, is the situation. A fact exists from which influences radiate. That is the 'thing' of science. At the instant when the causal influence is producing certain events in my brain (or very close to that instant) the qualities which make up my perception-fact exist. At or very close to the instant when another similar causal influence from the thing is producing similar events in your brain similar qualities exist as your perception-fact. So much is unquestioned by any one who examines the actual situation.

But now, how is it that the data of perception seem not merely to 'reveal,' but to be, the things themselves which science studies, seem to be 'out there' where the things are which send their influences to the brain? Do we not make the 'out-there-ness' of perception-data an illusion? In answer, we must make a discrimination. The 'out-there-ness' *quality* of our data cannot be illusory in the sense of being unreal—for we cannot deny qualities

actually found in our data. But it can be illusory in the sense that it does not imply that the data really are in the real 'out-there' of which science speaks, where their causes exist. That this is a perfectly valid discrimination is proved by the facts of hallucination. The datum then present has all the quality of 'out-there-ness' which any perception-datum ever has; but every one acknowledges that the datum does not exist in the real 'out-there.' It is perfectly possible then to believe that *no* perception-data exist in the real 'out-there'; the difference between valid perceptions and hallucinations being not in their place of existence, but in the fact that the former are effects of and correspond to real existences in the real 'out-there,' and the latter do not.

Common sense is justified then in saying that we perceive the things of which science speaks. We *do* perceive them. But what does that statement mean? The plain man does not analyze it or perceive its apparent discrepancy with the facts of the physics and physiology of perception which we have noted. In the light of those facts *it can mean only that* we have perception-data which are effects of and representative of the things themselves. I really see the star Vega. That is, a twinkling-point-of-light exists now, which is the effect and representative of that vast whirl of atoms which existed billions of miles away, and may have ceased to exist many years ago for all I know. I really hear the sound of your hammer. That is, a sharp metallic sound exists now, the effect and representative of an agitation of the air-waves which took place a few moments ago at the point where the hammer itself hit the nail, but no longer exists there. These are the facts. But there seems to be no need of revising our common sense language. All we need is to be ready to discriminate, when occasion arises, between the thing itself, in the real 'out-there,' the cause of my datum, and the datum (quality of 'out-there-ness' and all), which exists together with my other data at a later moment. Common sense has no need of making this discrimination, and being a practical faculty, does not make it. We act upon our perception-data as if they were the actual qualities of the things in the real 'out-there,' and since they are to us those things, we are justified in so doing. The actual situation is much as if we went about with an ingeniously arranged *camera obscura* about our heads, so that we never saw the real world, but always

an excellent picture of it on the glass in front of our eyes. We should soon learn to steer ourselves about perfectly by means of that picture; and if we had always lived with that box about our heads that picture would be to us the real world. Of course we should have to suppose a similar arrangement for each of the other senses, removing us by a step from every outer thing, to make this picture world our real world. But that is actually the kind of arrangement we *are* born into. We have only pictures (if we don't take that word too literally) of things. We are many steps removed from them. The eye is an excellent *camera obscura*; and there are steps before and after the eye event between the things themselves and our perception-data.

If then the datum of perception is another set of facts from the 'thing' of science, existing at a moment removed from the moment of that fact by all the time required for the causal influence to travel from thing to brain, can it be identified with any other of the 'things' of which science tells us? That is, if it is not identical with the source of the radiating causal influence, the 'thing' which it stands for to us—and it cannot be since that 'thing' may have utterly ceased to exist when it exists—can it be identified with any of the physical effects of that cause of which science tells us? No. Science does not tell us that the data of perception are identical with æther-waves or optical disturbances, or any part of the mechanism between the cause and its brain-effect. Nor does it tell us that they are identical with those brain-effects. Indeed it finds nothing in the brain but atoms in motion—finds there no twinkling points of light or sharp metallic sounds. So we are left in the lurch. This is where metaphysics gets her innings again!

All that science *can* tell us is that the various data of perception exist actually or nearly contemporaneously with various brain-events. There is a definite synchronism between definite data of perception and definite brain-events. All the possible data of human perception are thus correlated with possible brain-events covering a certain area of the cortex. But *where* do they exist? Are we to be left with a mysterious synchronism and nothing else? Are these data of perception, the most assuredly real of all facts, to find no abiding place in the physical universe, to be left just curiously hovering above brain-events, in some fourth dimension perhaps, at any rate in no assignable place?

We might think we had escaped the difficulty by calling them 'psychic' events, and saying that, being 'psychic,' they could of course have no place in the physical universe. But that is a verbal resource. Calling them by a new name doesn't solve the mystery. They certainly seem, besides, to be effects of admittedly physical causes. Whatever name we give them, the mystery remains—how are they, where are they, related to the physical world that science studies? They are not those causes, for they exist later, and those causes may have ceased to exist in the meantime—not only the particular event that caused the datum, but everything that science calls the 'thing.' They are not any one of the physical facts up to the brain-events, for those physical facts have all ceased to exist when they exist. They are not to be found at any other place in the physical world; and the assumption that they exist at some other definite place in that world (neither the 'thing' nor the brain), as if by a triangulation of forces, leads to no explanation. The only relevant physical existences at the moment of the existence of the data of perception are certain brain-events. It is to these that the data of perception are in some way tied. But how?

It seems to me that there is but one explanation of this situation. We may refuse to try to explain it. But if we admit the right to beliefs that offer adequate explanation of the empirical situation when there is no plausible alternative—and we all do practically admit that right, as I showed in § I, in believing in our own past, in other people, and things—we may without hesitation adopt that belief which really explains the situation we have described. That belief is that *those 'things' in the world of science that we call brains would be found, if we knew enough about them, to be consciousnesses, or 'fields of data.'* What I call, in the language of physical science, i.e., very abstractly described, my brain-events, are in their fullness of reality the very events which take place in my 'field,' the events of my 'consciousness.' This paradoxical-sounding theory will show itself to be lacking in all paradox upon examination, and to be wholly consonant with all known facts. It gives us the only theory which fits all these facts; the only theory which puts what are commonly called physical and psychic facts into one universe, and shows how they jibe, how they really form one continuous universe.

III. CONSCIOUSNESS AS THE BRAIN IN ITSELF

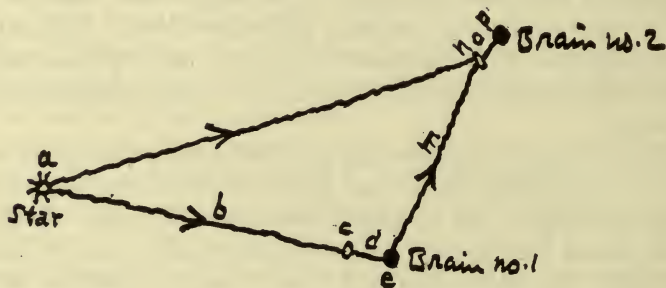
The first objection commonly raised against the theory that consciousness is what the brain is in itself, is that brain and consciousness are obviously utterly different things.* In reply we may say, first, that there is nothing in perception to make against the theory. The perception-data that we have when we perceive a brain *are* obviously different from the consciousness that is correlated with that brain. But that does not in the least indicate that that brain may not have in itself, for itself, the qualities of consciousness, and those qualities alone. We are not asserting that the brain as perceived has those qualities; the brain as perceived has the qualities of our perceptions, in other words is a part of our perception-data. The brain itself does not get into our experience at all except in this reflected way; it exists out there, separated from the perceiver by the æther-wave-eye-optical-nerve-mechanism; what its nature is in itself perception cannot tell us.

But, it is said, I perceive that my very data of perception exist out there, not in my brain; and since it is these very data which we are agreeing to call (together with the 'subjective' data) my consciousness, is it not clear that my consciousness is not my brain? But, again, the *things* exist 'out there,' certainly, and not in my brain. Yet the qualities that my perceptions of those things have exist 'here.' I really move about among and react upon things which are outside of me; but the visual and tactile qualities which they have for me exist *in* me. 'My consciousness' is a name for my perception-data (or for the relation that exists between them, if any one prefers); but these perception-qualities are effects of the things, they reveal the things, they *are* not the things. The very out-there-ness of my visual data is a visual quality, produced by a well-known optical mechanism, which

* It must be borne in mind that we are accepting that usage of the term 'consciousness' according to which it is equivalent to 'the given set of data.' We mean by it no substance or kind of stuff contrasted with matter; we mean by 'my' consciousness simply 'these data present together,' and by 'your' consciousness 'those data present together.' Some of the data in each consciousness are what are commonly called 'subjective' data—ideas, wishes, dreams, etc., others are what we have called 'perception-data.'

stands to us for the real out-there-ness in which the things themselves abide, but is a quality of my data, produced at this end of the causal chain.

The trouble is, we think of our brains as a mass of gray matter, forgetting that that is but a perception of the brain, a set of data that would exist if some one could perceive my brain—but would exist at *his* end of the causal chain, as a part of *his* consciousness. Again, we think of our brains as small, whereas our consciousness seems to sweep over a wide territory and even to reach out and grasp the stars. We need to distinguish. Our consciousness does *reveal* such a world, and we live in *it*, we think of *it*, rather than of our consciousness itself, which exists in the small brain-tract. It is a difficult discrimination for one to make who has not analyzed carefully the given situation. Let us therefore present the situation, as it certainly is, apart from all theory, in a diagram.



Let (a) represent a star (in itself), (b) an æther-wave (in itself), (c) an optical disturbance (in itself), (d) a nerve-wave (in itself), (e) a brain-event (in itself). At (or at least approximately at) the instant when (e) takes place, another event occurs which finds no place on this diagram, namely, the existence of a certain perception-datum, a twinkling point of light. Because it occurs simultaneously with (e), and is therefore generally spoken of by psychologists as 'correlated' with (e), let us call it (E). Now it is clear that the star and the brain are not in the same place, if we mean by 'the star' the fact (a). But if we mean by the star the fact (E), there is nothing whatever against the supposition; there is, instead, this in its favor, that (E) exists when (e) exists, not when (a), (b), (c), or (d) exists.

Now suppose another observer is watching my brain while I am alive—it is theoretically possible. He sees a lot of gray matter, but no star-datum, no (E), there. Yes, but the situation is exactly parallel, we must remember, to the sight of the star. The star is (a), the *sight* of the star, the star-datum, is E. So, the brain-event is (e), the brain-event-datum is—let us call it (P). It occurs not at the instant when (e) and (E) occur, but at a later instant, after (m), (n), and (o) have occurred, and when (p), the brain-event in the observer's brain, is occurring.

In all this there is absolutely no theory. It is a plain description of the empirical situation. It shows us that there is nothing in perception to militate against our theory, which consists, so far, just of one point, the identification of (e) and (E), of (p) and (P), etc.

There is nothing in perception to militate against it. But does not physical science, which aims to be a knowledge of things as they are in themselves, militate against our identification-theory? No. We have explained that by identifying the two we mean that the physical description of the thing is true of it but is incomplete; that the thing in its fullness is what we find it to be at first hand. Science describes brain-events as complexes of motions of almost infinitesimal units. What these units *are* we never learn; they are the units that make up things, they are given a name, that is all. They move in certain ways; their movements are correlated with one another and with the moving 'waves' between them which we call æther-waves. So they are sometimes called 'centers of energy.' But 'energy,' in the physical sense, is nothing ascertainable but motion, actual or potential, i.e., motion which is occurring, or will occur under given circumstances. Æther-waves are motions of something in between the units that we call atoms or electrons; but when we ask, motions of what, science cannot tell us. Motion is change in space in time. Our whole scientific knowledge can be put—and it is the aim of science so to put it—in terms of space-time changes of the units of existence. Scientific formulae do often of course speak in terms of qualities, color, hardness, weight, etc. In so far as they do this they are still speaking of things in terms of our perceptions of them, they have not pushed their analysis to its goal. That goal is the reduction of all scientific knowledge to the terms we have in-

dicated. So far as science completes its work it becomes a description of the space-time changes of undescribed units—a description of relations, not of qualities.

There is nothing then in our scientific knowledge of (e) to forbid our believing that when fully known it is (E). All we actually know of (e) is that it is some space-time change of some of the units of existence at that point in the world; a change, presumably, that could be described, if we knew enough about it, in terms of natural law, i.e., by the same formulae that serve to describe already analyzed changes. There is nothing to show that the formula by which we should describe this event if we knew enough about it would not apply also to the event (E). Our perception-data are exceedingly complex and continually in change. Physical formulae are highly abstract and inadequate truths about things. They may be true of these perception-data; they may describe the structure and relative changes of the elements of these complex data. Physical science may give us the skeleton, of which the flesh and blood are the *qualities* of the data. It is the qualitative aspect that strikes our attention most when we have the data at first hand; they may nevertheless have a definite skeleton, and physical knowledge of brain-events may be a knowledge of that skeleton.

It will be objected that brain-events are many and the total conscious event at the same time is one. If we use the language we have clung to, however, and instead of consciousness say 'set, or field, of data,' it will at once be seen that tho the field is one field, the data are many. The total brain-process too is in a very real sense a unity; the brain is an organic whole of interrelated and mutually influencing parts. It is its unity of diverse elements that makes it an effective instrument in the organism's successful life. So a given consciousness, or field of data, is a unity of diverse elements. All the simultaneous elements within the field exist *together*, in the peculiar relation of togetherness that constitutes the field; but these elements are manifold. In a sense, a consciousness at a given moment is one; in another sense it is exceedingly complex. The shades and variations in our field of present-data may quite reasonably be judged as numerous as the variations in the complex brain-process which, we say, is the physical name for it. Physical brain-process knowledge is, when

interpreted, a set of formulae describing in abstract terms these variations in a given field. If we clothe this pattern with the *qualities* which the data have, we shall have a *complete* description of the events in the given field. But physical science cannot ascertain those qualities; it must be content with an abstract relational knowledge.

If then our identification of consciousness with brain as it exists for itself is not controverted by the facts of perception or of science, what are the positive grounds for making it?

The first ground is that it is the simplest assumption which does away with the mystery. Without some metaphysical theory we are left with our E's and P's dangling at the moments when our e's and p's exist, but with no place in the world-order; and their relation to the e's and p's, indeed, their existence at all, (since they are so different from anything we know of the preceding physical events) remains a baffling mystery. We have, as the actual situation, the following facts, forming a causal chain:

$$a\ b\ c\ d\ \left\{ \begin{array}{l} e\ e'\ e'' \\ E\ E'\ E'' \end{array} \right\} f\ g$$

Here (e), (e'), (e'') are three succeeding brain-events: an agitation in the optical tract, a current passing over to the arm-motor-tract, and an agitation there; (f) is a nerve-wave to the arm, and (g) a movement of the arm (say to pick up an opera glass wherewith to look at the star to better advantage). When (e) exists, (E), the star-datum, exists; when (e') exists, (E'), the forming of the desire to pick up the opera glass, exists; when (e'') exists, (E''), the will to pick up the glass, exists. The physical chain could apparently take care of itself. What are (E, E', E'') doing there? How are they related to (e, e', e'')? Why, it is all explained if we make the simple assumption that the e's *are* the E's. We don't know of *two* sets of realities there. Learning of the facts which exist then in two different ways, we call them by different names; but that does not imply that they are different facts.

Another mystery which the assumption explains is that of the relation of the 'subjective' data to bodily events and to the world. If perception-data are the realities described by science as certain brain-events, then we may likewise assume that ideas,

wishes, resolves, dreams, etc., are the realities underlying other brain-events, those, namely, which are 'centrally,' not 'peripherally' excited. The evidence is ample that none of these data exist without definite brain-events 'correlated' with them. If these data are those brain-events in themselves, then the whole field of data is the whole brain-process in itself, and the relation of 'mind' and 'body' is explained.

Still another important set of facts which the assumption explains is that relating to the causal efficacy of conscious states and brain motions. Physiology tells us that the cause of (f) is (e''), which is caused by (e'), which is caused by (e), which is caused by (d). But direct experience seems to show that (d) causes (E), that (E'), that (E''), and that (f). The will to pick up the opera glass at least supposes itself to be the cause of the arm movement. On our theory both causal chains are real and not illusory. For it is only one chain of events. With fuller knowledge the e's can all be written E's.

Finally, there is one significant fact that points directly to our assumption. Brain-events, being definite effects of outer things, vary concomitantly with them, and are thus, in some degree, representative of them. But the data of perception are *also* representative of things, as is shown by the fact that they reveal those things to us, serve to steer us about among them. When they are *not* representative of them they are illusions. This difference between true perception and illusion, an empirical difference, points to the truth that true perceptions are really representative of outer reality. We have thus two representations of outer reality produced simultaneously. This points to their identity; and their identity explains the desperate problem of epistemology. How can conscious facts represent reality? Through being effects of it, produced, as the brain-events are seen to be produced, through the mechanism of perception.

I hold then that just as it is legitimate to believe in the existence of the universe, because that assumption *explains* the peculiarities of the data within a given field, so it is legitimate to believe that consciousness is the brain-in-itself, because that assumption *explains* the peculiarities of the empirical situation.

IV. THE NATURE OF THINGS IN THEMSELVES

We now have a theory which explains the relation of brain and consciousness; and with that as a tool we may attack the problem of the nature which things have in themselves. What means have we for solving that problem? In the first place, we have our perception-data. But the qualities which compose them exist, *so far as we know*, only at the brain-point in the world-order, separated spatially by the whole mechanism of perception and temporally by the interval the causal process requires to traverse that mechanism from the things perceived. We cannot assume without further evidence that things have in themselves similar qualities. Our perception-data have undoubtedly some formal correspondence with things, else they would not serve to steer us about among them successfully; they are, as we say, representative of them. But this representative function is compatible with a totally different qualitative nature. Hence there is nothing in perception to indicate the qualitative nature that things have in themselves.

A further consideration shows that it is impossible that more than a very few of our perception-data should be copies of the qualities of things themselves. For those perception-data which are perceptions of one and the same thing vary indefinitely themselves. The copy-theory of perception is conclusively disproved by a comparison of the qualitative differences of different people's perceptions of the same object. Suppose a hundred people are looking at a tree, i.e., in exacter language, are having visible perception-data representative of the tree. No two sets of perception-data are exactly alike. Those who are near the tree have a bright-green-tree-datum, those farther away have a bluish-green-tree-datum, those who are color-blind have a drab-tree-datum. Those who are near have a large-tree-datum, those who are far have a small-tree-datum. Since no two heads are in the same place, no two see the tree from the same angle of vision; it is impossible that the datum which any one has, and which is for him the tree, can be precisely like that which any one else has. The differences may be extreme, as when a

man is miles away, and his tree-datum is but a tiny blur. Now of all these qualitatively different data only one datum *can* be a copy of the tree as it is in itself. Which one? Is there any more reason for supposing that the tree in itself is green—since through a mechanism which includes an optical retina of a certain sort it produced an effect which has the quality ‘green’—than for supposing that the tree in itself is drab—since through a mechanism which includes an optical retina of another sort it produces an effect which has the quality ‘drab’? We say the latter retina is abnormal and distorts the real nature of the tree. But in truth all that the word ‘abnormal’ can mean is ‘unusual,’ or else ‘unfitting us for dealing with the object.’ The man who sees the tree drab, however, is as well fitted to deal with it as he who sees it green. The fact that fewer men have a drab-datum than have a green-datum proves nothing at all. And if we merely take one man’s experience alone, the same tree in itself cannot be both bright green and bluish green. Which perception-datum is a ‘copy’ of the tree, the bright green or the bluish green datum?

There is a phrase which seems to meet the situation. It is said, the tree has *all* these qualities at once. It is bright green *in relation to* a near-by observer, bluish in relation to a far-off observer, drab in relation to a color-blind observer, etc. But what can this ingenious phrase mean on analysis? Either of two things. Either that the tree itself has all these contradictory qualities at the same time and place—which is a logical impossibility; or that it is of such a nature as to produce these different perception-data through the different media intervening, which is our contention. That the former possibility is not illogical is sometimes urged. It is pointed out that a man may be a father in relation to one man and a son in relation to another at the same time, a nephew to a third, etc. But these are but shorthand ways of referring to facts not existing as qualities in the man. We mean to say that the man was begotten, years ago, by this other man, is what he is today on account of that fact, among others. In his turn he has begotten a son. The facts are clearly denoted by the words ‘father’ and ‘son’; there is no contradiction between the two sets of facts. And there is no contradiction in a tree’s being green and drab at the

same time if we mean that it has produced and is of such a nature as to produce the green effect through one mechanism and the drab effect through another. Or we might mean that part of it is green and part of it is drab—the two qualities can easily coexist side by side. But this man's tree-datum is *all* green (leaving aside the gray trunk, etc.), that man's is all drab. Both cannot be accurate copies of the same original. You can picture a man, and label the picture A's father; you can picture the same man and call the picture B's son; you would have exactly similar pictures. Because 'father' and 'son' denote relations, not qualities. You cannot picture a drab tree and a green tree and have exactly similar pictures, because 'green' and 'drab' are not relations but qualities.

What our various perception-data which reveal the same thing have in common is not a group of qualities which copy the qualities of the original, but a certain formal correspondence with one another, a similar place in that universal order into which all our perception-data fit, and a similar function in directing our action. It is exactly such a formal knowledge, such a knowledge of the place of a thing in the whole order of things, and of the function it will fulfil in the general interplay of things, that science gives us. Scientific knowledge is but an extension of perception-knowledge, the difference being that our perception-knowledge is clothed with a qualitative nature, which science, in its ultimate analyses, strips from them, presenting in succinct formulae that part of our perceptions and their possible extensions which is really knowledge of the *things*—the formal part.

Of course, as we think of the universe, we clothe it in our mind's eye with the qualities which our perception-data have. It is a natural and instinctive case of the pathetic fallacy. And in spite of our philosophic insight we shall go on thinking of the world in terms of our perceptions of it. It is necessary that we should. What matters to us, except in our moments of intellectual curiosity, is not the inner nature of things, but our own potential experiences. Whenever we experience the world, it is bound to be through the medium of our sense-organs; and the world *for us* will always be, in our practical life, a world with such qualities as our perception-data have. None the less real, if hidden forever from our gaze, is the fullness of life which things

have in themselves, on the other side of our perception-mechanism.

Our scientific knowledge then cannot reveal to us the qualities which things have in themselves, any more than our perceptions can. Science is but a fitting together of our perceptions and a revealing of their pattern, the order which they follow, which must be the order of the world of things, because we are able by our knowledge of it to predict with precision future changes in things. We must not be confused by the thought that science reduces everything to atoms in motion. Atoms (or whatever we call the ultimate units of matter) we picture to ourselves as hard little grayish bits of matter. The qualitative nature of things composed of constellations of such atoms is obviously very different from the qualitative nature of our perceptions of those same things; yet there seems to be a fairly definite qualitative nature there. But we are completely mistaken in picturing atoms as hard grayish bits of matter. The prime-atoms (which seem to be what are called 'electrons' nowadays) are not known to have any qualities whatsoever. They have mass, but that is their quantitative aspect; they have inertia, velocity, they attract, repel, etc., but these are all descriptions of their motions and the motions which they invoke in one another. In the electrons we seem to have reached the units of matter, because they seem to be identical in mass with one another. They are simply 'units of matter,' 'centers of force,' 'points of reaction,' etc. We know nothing of their qualitative nature.

Indeed, a study of the causes which produce all our perception-qualities seems to show that those qualities *cannot* exist in the things. Take light, i.e., brightness, for example. Light is to the physicist a certain æther-vibration proceeding from certain changes of motion in certain electrons which are flying about in material bodies. These electrons which produce light-waves are but a very few among the myriad units which make up a material body. The light, or brightness, which is a quality of our perception-data is the effect of those æther-vibrations, through the eye on the brain. Are we to suppose that the æther-pulses have the quality of brightness too? That the electrons whose sharp turns produce these pulses have the quality of brightness? Even if we were to make that supposition, far the

greater part of the mass of the body is left without the quality of brightness.

So it is with the other qualities we ascribe to things. Heat *in the things themselves* is, so far as science tells us, but a more or less rapid motion of molecules—not at all that quality which we mean by ‘heat.’ So with hardness. Things themselves are not hard solid bodies, they are great voids, like the open sky, with exquisitely tiny units, very far apart from one another, flying about in them, and tiny lines of æther-vibration radiating between. Physically, hardness is the fact that other bodies do not readily push into and distort these constellations of units. What we feel as hardness, this quality that we get in our experience when we push against certain bodies, is a fact that exists, so far as we know, only when our muscular sense has sent a nerve-wave to the brain. No doubt this physical knowledge of motions is incomplete knowledge, but there is nothing in this knowledge to indicate that we can legitimately fill it out by reading back into the things the effects produced when the influences radiated from them strike us.

We must not forget that we are removed by a number of steps from things. The nature of the thing itself is described abstractly by science in terms of the motions of tiny units; the æther-vibration is something quite different; the optical disturbance quite another sort of fact; the nerve-wave still different, and the brain-event different from that. How *could* a *copy* of the thing itself be produced through such a set of changes! Just as a picture is produced on a photographic plate through a partly similar set of changes? Exactly. But a picture is not a *copy* of what it pictures. Is a picture of you a copy of you? It does not even copy the softness of your flesh, or clothes, the weight your body has, its heat, or many another quality which an observer can perceive your body to have. Still less does it copy your real inner nature. Much as a photograph pictures a body do our perception-data picture things. If you print your picture on solio paper you get one kind of representation; if you print it on sepia paper you get another kind; if you use a small camera you get one kind, if a large, another; if you use a red glass lens one kind, if a green glass, another, etc. Your pictures will have in common only their formal correspondence with the body pictured. So it is with our perceptions.

But there is another important set of considerations. Close study of our sense-organs and brain makes it apparent that the qualities of our perception-data depend upon their nature, while their form depends to some extent on sense-organ facts, on æther-wave facts, on nerve-wave and brain facts. For example, I shake my eyes, and have a moving-tree-datum. I am sure however that the tree itself does not move. How could the shaking of my eyes make a tree itself move far away from me? Again, a straight stick partly in water looks bent to me. The æther-waves have been bent by the water—but I know the stick itself is straight. I can verify that belief by feeling of the stick. Again, if the nerve between my eye and brain is broken I see nothing at all. But I believe that things themselves still exist. We have to disentangle the causes that reside in the thing from the causes that reside in the mechanism of perception. And we see that all the qualities of our data, everything except a certain aspect, which we can disentangle, of their order, or pattern, depends upon the particular nature of that mechanism.

Thus if our sense-organs were different we should have quite different data. The world for us would be very different, and we should picture it in our mind's eye very differently from the way we do picture it. If our eyes were made to respond to the waves that affect our heat-sense, and our heat-nerve-organs were made to respond to light-waves, we should have visual data when we now have the quality of hotness, and feel hot when we now see. The entire visible world would be but a series of variations in temperature to us, and we should see the differences in the heat of different parts of our body as a picture! Or, if the nerves from the fingers were to be spliced to the optical nerves, we should have color- and light-sensations when we feel of things; with closed eyes we should literally see a world through our fingers. But it would be a very different world from that we actually see; for the stimuli to the tactile organs are different from the stimuli to the optical organs. We might learn to get along in our new world as conveniently as we get along in our actual picture-world, both worlds being only pictures, in different materials and with different pigments, of the actual universe. In such another picture-world from ours do the animals live, no doubt. Who can imagine what the world is like to dogs, for

whom scent is the great sense? Yet they are as well guided for their purposes by their perception-data as we by ours. How foolish then to suppose that the particular set of perception-organs which we men, in this particular stage of our physical evolution, possess, happens to produce a set of perception-data which copy the real qualities of things!

That they do not copy the qualities of things is finally proved by a comparison of brain-events with the outer physical events which cause them; there is no doubt a concomitant variation between them, but there is no close similarity. In so far, and only in so far, as there is similarity between the two events, as physically described, can we infer a similarity in their reality.

We have in all this erected no dualism of matter and mind. My mind is just—these data which exist together. Other minds are other similar sets of data existing at other points—namely, where, in physical terms, other brains exist. Matter is just—all those other realities which exist in the spaces between the ‘minds.’ There is no reason why we should not suppose all these realities homogeneous in substance—whatever meaning that phrase may have. Indeed, the teaching of evolution makes it plain that all these complex realities have evolved out of simpler stuff. Brains are made up of the same matter that makes up the rest of the universe. So, in the fuller language of direct experience, consciousness is made up of the same stuff that makes up the rest of the world. Whether we call that stuff psychic or material is a mere matter of convenience. There is no legitimate antithesis between the two terms. We shall call reality psychic if we wish to indicate that it is homogeneous in nature with consciousness; we shall call it material if we wish to indicate that it is the reality which lies behind (so to speak) our perception-data, the reality that we point to and call matter, the reality which physical science calls matter. All our physical knowledge is true of it. More also is true of it, but that more we must learn indirectly.

One great advantage of our theory thus is that it makes the origin and development of consciousness a natural event in evolution. Consciousness is not a new kind of existence, suddenly appearing on the scene, when matter has reached the degree of organization to which we give the name of brain. It is that brain, being naturally developed by the same laws which hold true of all

physical evolution. Everything is material, everything is mental, (or sub-mental, if we take 'mind' as equivalent to 'consciousness,' the reality symbolized by a brain), according to the terms in which we describe it. Our theory may, as Dr. Prince well says, be called panpsychism or panmaterialism, according to which aspect of the truth needs emphasis.

Finally, then, if neither perception nor science can tell us how like or unlike the qualities of things are to our perception-data, what means have we of inferring these qualities? We have three possible means. The first would be to note the exact physical difference between a given brain-event, the preceding nerve-event, sense-organ event, etc., back to the physical event in the thing itself which caused it. We could thus discover in physical terms just how the brain-event distorts the event in the thing itself, what is the 'personal equation' which we must eliminate in our description of the thing. But physical knowledge is knowledge only of the order, the skeleton, of reality; how shall we fill in this skeleton with flesh and blood? Why, our consciousness is the flesh and blood of which a certain brain-process is the skeleton. And when we have eliminated the distortion-elements from the brain-process, if we eliminate their corresponding conscious-elements we shall have left the flesh and blood which corresponds to that aspect of the physical event in the brain which is a copy of the event in the thing itself.

There is no need, however, if we only wish to learn the nature of the things at the other end of the perception-mechanism, to take account of that mechanism at all. What we need to do is to compare the event 'out there' with the event 'here' as physically described, and then use the equation which Clifford suggested. As the physical nature of other things is to the physical nature of the brain, so is the full nature of other things to the full nature of the brain—i.e., to consciousness. In another form, Reality : its physical description :: consciousness : the physical description of the brain-process.

Impracticable this method certainly is at present, with the meagre knowledge of brains and of other material events which we as yet possess. The best hope for immediate results seems to lie in reading the minds of other people through a comparison of their brain-events with ours; a reading of the minds of idiots and

children and a study of all pathological cases. Then we can gradually work down the scale through the higher animals to the lowest organisms, and so hope, in this step by step manner, to approach an insight into the inner life, the qualitative nature (the two phrases are equivalent) of inorganic matter. The great recent increase of results in pathological and animal psychology, and the still more recent beginnings of 'plant psychology' point hopefully to future conquests. We must confess, however, that our whole theory must forever remain a metaphysical theory, a theory, that is, that is essentially unverifiable. By no possible hook or crook can we ever get *into* other things and *have* in our experience their inner life, their qualitative nature, and so check our inferences. But we are in exactly the same case in our reading of the minds of our dearest friends. And so we may hope that at some distant time man can read, with practical assurance, the qualities that make up the life of all things.

V. THE PECULIARITIES OF CONSCIOUSNESS

The theory I have now outlined consists of two steps, the identification of consciousness with brain as it is in itself, and the attributing to the rest of reality a nature like that of consciousness in the degree in which as physically known it is like the brain as physical science describes it. These two inferences seem to me to be supported by much evidence and to give us the simplest theory that explains the main known facts of existence. But it is only the prelude to a knowledge of reality. The fruitful task for metaphysics would seem to consist in filling in the flesh and blood throughout the spread of our physical knowledge, giving us in conception a picture of what things are in themselves. To do this we shall have to push the foundations of physics further than they have yet been pushed, and to learn much more of brain physiology than we now know. When we shall have learned just what brain-event corresponds to what quality in our consciousness, we shall, by comparing the different types of events, be able to construct in imagination what qualities correspond to given motions in the outer world. At present we are very far from being able to carry out such a program; and anything further than what we have said must be highly hypothetical. But it may be worth

while to offer a few suggestions as to what the outcome of such investigation may be in its salient outlines. We know enough of the difference between brain-events and outer physical events to be able to make some guesses as to the difference between consciousness and the rest of reality. What we can safely say, however, is mostly negative; we can point out some general peculiarities of the brain-process and the peculiarities of consciousness that seem to correspond thereto, and we can say that these peculiarities must not be read into the nature of outer reality.

The first thing to settle is, just what *tract* of physical events pictures consciousness. We have spoken of the 'brain-process' as that tract. But the most careful studies should be carried on to determine exactly what part of the physical events that go on within the skull, and whether any physical events beyond the confines of the skull, picture what goes on within the field of consciousness. As to the latter portion of this inquiry, there are not lacking those who hold that the field of consciousness includes all the realities pictured by all bodily events. The facts in that field corresponding to events outside the brain are held to be 'marginal' facts, a dim background to the more vivid and important brain-event facts. The argument for this position is that the human body is an organic unit; it is more natural to suppose that the limits of the field of consciousness coincide with the limits of the body, which moves about independently among other things, than that it coincides with the limits of a particular portion of that body.

The evidence, however, makes for the latter hypothesis. It is proved that if certain definite portions of the cortex are removed or diseased, certain definite phases of consciousness are lost or distorted. It is not shown that any bodily change, amputation, or injury, affects consciousness except indirectly, through the nerve-message to the brain. If the nerve that runs from eye to brain is severed, or if a certain small tract of the brain into which that nerve-cable runs is destroyed, all possibility of visual data in consciousness is lost, tho the eye itself be in perfect working order. Contrariwise, if the nerve that runs from eye to brain is stimulated by electricity, so that a disturbance-message is carried to the brain, the quality 'light' appears in consciousness even tho the eyes be totally blind or lost. After a man has lost a limb he still

not uncommonly seems to feel the limb. In such cases the nerve that used to bring messages from it to the brain is agitated and rouses the customary perception-data there. If the reality corresponding to the body outside the brain exists within the field of consciousness it does not exist as the perception-data which make up the body in our consciousness, it can exist only as a dim unnoticed background.

But it is also evident that not even all brain-events exist, in their reality, within the field of consciousness. There are the well-known cases of split personality, where two separate fields of consciousness exist side by side, and all stages of dissociation less marked. All the facts explained by the phrases 'unconscious cerebration' and 'the subconscious' must, on our theory, have a reality of the same general nature as that of our consciousness-elements; but they exist in isolation, without interplay of influence, until some moment when a current rushes over from the isolated group into the main field. In such cases ideas jump into our minds out of the unknown. Much of the work of thinkers and poets seems to be done in this region outside the field of consciousness. Ideas ripen and mature there, and come to us in moments of relaxation; our energies not being then concentrated elsewhere, enough energy out of our always limited stock can be appropriated by the subconscious elements to enable them to flow over, as it were, into the main field. All the curious facts of trance, crystal-gazing, automatic writing, etc., etc., as well as such familiar facts as conversion, are easily explicable on this theory of isolated elements and groups of elements similar to those that make up the main field of consciousness. Hysteria is explained today by Freud and Janet by the conception of such isolated ideas and emotions, unknown to the main stream of consciousness, but having a disturbing effect upon the body and thus indirectly upon consciousness. These isolated ideas can often be tapped in the hypnotic state, or by merely directing the patient's thoughts in the right direction; when they are brought into relation with the main body of consciousness they become subject to the control of the will and lose their disturbing power.

If space permitted, a long discursion into these half explored regions would do much to reinforce our general theory. But we can only pause here to say that it seems sure that those ele-

ments of reality that are bound together into the field or stream of consciousness are by no means all the elements of reality that correspond to the total sum of brain-events; much less do they include those elements of reality which correspond to bodily events outside of the brain. This organic unity which we call consciousness consists of such elements of our total brain-reality as get bound together by an interplay of causal influences, and therefore permit the recovery of one another's past, in the form of memories, from any point within the total field. Whatever elements have not got closely enough linked with this close-bound aggregate to be revivable in memory from within that aggregate play only a spasmodic part in the personality. Those events we cannot remember. But there is no sharp line. There are all degrees of separation and unity among the elements of the brain-reality. Two series of disparate activities may go on side by side, with little interplay of influence. We all keep our different kinds of experience and our different moods in more or less separate compartments. We all are taking in a thousand impressions daily which never get into the main complex, and have no effect on our practice. Dreams are a good illustration of activities that go on within our total brain-reality pretty completely shut off from the main stream of our life, and not usually revivable in memory therefrom, even tho vivid enough at the time and attended by deep emotion.

Consciousness is a common pool of elements, whereby action can be affected by all the memories recoverable therein as well as by the immediate perception-data that appear in it. It is a changing unity of elements, now shrinking, now extending, now losing some of its elements, now including some previously lost; by this gain and loss it gains and loses the potentialities of memories. But it never includes anywhere near all the elements that correspond to the total sum of simultaneous brain-events. If motion is universal, as physics teaches, and every motion pictures a reality, all these simultaneous brain-events are actually 'psychic' events, i.e., have qualities; mostly, no doubt, of a vague 'background' nature, but sometimes sensational, sometimes ideational, sometimes emotional. Some reflexes seem to be permanently split off from consciousness, unreachable by it, others may exist in separation for a while and later become fused.

The cerebellum- and spinal-ganglia-events may form little consciousnesses of their own. It seems likely at any rate that our main consciousness never includes all simultaneous brain-events, never spreads, so to speak, over even the whole cortex.

This consciousness, this brain-process (to look upon it from the physical side) that functions as a unit, is the most intricate and complex mechanism of which we know. It is the very acme and highest development of the long process of evolution, which has consisted largely in an increasing complexification. Here are the greatest variety of motions and of changes of motions within a small compass of space and time to be found anywhere. The richness of human consciousness is presumably pictured by the complexity of these motions, and its variety by their ever-varying character. All non-brain-matter must represent a far less rich and varying existence. It can have no perception of other reality; for the brain alone, owing to its peculiar structure and its relation to sense-organs, allows of that peculiar reproduction of the form of other realities. Every element of the world outside of those unified groups or fields of elements which we call a consciousness, or a unitary brain-process, must live in the dark, as it were, in a sort of revery, unconscious of the existence of anything else than itself. It can probably have nothing of what we call pleasure or pain; for, tho there is no agreement among psychologists as to their physical concomitants, they probably, like perception, arise only when the complex brain-situation arises. Like perception, they are apparently a part of the mechanism by which the brain-in-itself steers us and adjusts us to the world in which we live. Emotions are made up of sensation-elements (=perception-data) plus pleasure and pain and incipient motor adjustments. Memory depends upon the structure of the brain, and may be called its plasticity. Thought, imagination, conscious will — all the important varieties of conscious life — are clearly dependent upon the peculiar organization of brain- (or conscious-) elements. Intelligence is our name for that organization as a whole as related to the world to which it is its function to adjust us. None of these complex forms of life can exist where that organization does not exist, i.e., outside the brain.

How then can we picture the life of the rest of reality? Well,

there must be a good deal of motion in the brain of similar type to motions outside the brain. If we exclude the complex processes which symbolize the faculties we have been naming, there must be underneath and between them a good deal of simple motion—revolutions of electrons about their atomic centers, heat-motions of molecules, etc. These have no memories, however, and are very likely, in their qualitative nature, but dim feelings which it would be difficult for us to catch and describe even if we could hold them in memory. It is probable that we shall never be able in this direct way to get at the simple elements within consciousness. If we could catch them in introspection we should not know which physical motions represented them. Our hope lies rather in comparing our vivid and complex types of consciousness, for which we can hope to discover the physical equivalents. The differences in these physical motion-complexes must represent the aspects in which those conscious-complexes differ; and we might thus analyze out the quality which each component of a motion-complex represents.

There is, of course, a good deal of physical activity in the brain even during dreamless sleep. There are absent, however, sensation-processes and the formation of memories.* If sensations intrude, and awaken memories, or if memories are roused through some internal forces, dreams occur. As to dreamless sleep, whatever be the quality of the brain-reality's life, there can be no memory of it upon awaking, so *we* (i.e. the main consciousness-complex) can never know what its qualities are. If we dream, the dreams, having little relation to our waking life, are promptly forgotten unless gone over in memory after awaking, and so linked to the waking life. If this is not done, they will yet have left traces on the brain's plastic organization (for they were the sort of process that forms memories), and under suitable circumstances they may be remembered, as in another dream, or even in some waking reverie or by some unusual sensation; they will then have for us a curious familiarity, yet seem unrelated to our waking life. This may be the explanation of the feeling that occasionally arises of having had an experience which we seem to remember, but know we cannot actually have had in this life. With the

* I am indebted to Professor Strong for calling my attention sharply to this aspect of the difference in the situation.

proper beliefs at hand, a man may thus easily persuade himself that he has had a vision of the beyond.

This digression may help to clarify our ideas about consciousness. Only certain complex brain-motions represent perceptions, ideas, etc. And only a certain organization and interplay of these motions represents a togetherness of these elements, a total consciousness. These elements are aggregated into consciousness in the degree into which they are interwoven and mutually arouse one another.

On the physical side, what happens when a thought or visual sensation enters a sleeping brain? This at least seems apparent. The motions in the sleeping brain are simpler and more stable than in the excited brain. In the latter, 'currents' are aroused, i.e., motions much more complex than the atomic and sub-atomic motions that preëxisted there. And these motion-complexes are very unstable, rapidly changing in form; whereas the atomic and sub-atomic motions are pretty uniform and stable. The difference between the non-existence of consciousness (during dreamless sleep) and its existence (upon awaking, or in dreams) would seem to be the difference between the simple, comparatively stable sub-atomic, atomic, and molecular motions, and the complex and rapidly changing nerve-current-motions; between comparatively simple and changeless sentient life and complex, rapidly changing sentient life.

The obstinate reader who is not yet converted to our theory will still be saying: But motions are motions of *matter*, and where does the matter come in on this theory? Now the concept 'matter' can mean but one of two things; either it means our perception-data (contrasted with our 'subjective,' non-representative, data); or else it means the reality that makes up the universe. That reality science studies, indirectly, through a study of our perceptions; but it can tell us only its order, not its substance. That substance is—well, call it, if you please, 'sentience'; that word connotes its homogeneity with our consciousness. Then 'matter' and 'sentience' are equivalent terms. So motions of *matter* are, in other words, changes in *sentient life*.

It is interesting to note that scientists themselves, quite without thought of metaphysics, are rapidly discarding the conception of what we may call the materiality of matter. They are

telling us that the ultimate units of matter are not themselves 'material.' They are calling them 'centers of force,' 'units of force,' etc. But, 'force' being nothing describable but motion and the potentiality of motion, this amounts to a blank confession of ignorance. *What* the stuff that makes up matter is, they simply cannot tell us.

A few years ago physicists were trying to discover the substance underlying matter, trying to work out a theory of matter-units as whirls of æther, which would then be the ultimate 'matter,' of which what we call 'matter' and what we call 'æther-waves' would be different types of motion, whirls and waves. But according to Professor N. R. Campbell of Cambridge, England, one of the acutest observers and critics of contemporary physical theory,* this whole type of thought "is, or will be within the next few years, as dead as the conception of caloric or phlogiston. Mechanical theories of electricity have gone very much out of fashion. . . . The tendency is much more now to attempt to produce an electrical theory of mechanics; that is, to take the fundamental electrical laws and theories [laws of the distribution of energy, or motion] as the basis of science, and to deduce everything else, including mechanics, as special cases of them."

That is, science is frankly confessing itself to be merely relational knowledge, and giving up the conception of a substance, matter, which is undergoing these space-time changes. When science shall finally have analyzed all physical facts into their simplest component motions, or forces, its work will be done. Only through the indirect route of metaphysics can we arrive at a picture, which we may hope some day to fill out in detail, of what things really are, in substance, in themselves.

* His *Modern Electrical Theory*, Cambridge, 1907, is still the best general survey and criticism of modern researches into the ultimate nature of electricity, light, heat, etc., and the ultimate constitution of matter. The quotation given is from a letter to the writer dated Jan. 26th, 1911.

VI. INDIVIDUATION

We cannot end our consideration of the nature of things in themselves, the reality which lies 'behind,' is revealed in, our perceptions, without noting the theory advanced by Romanes, Fechner, Paulsen, Heymans, and others, that the universe of things-in-themselves forms a single vast consciousness, a sort of over-soul, including our consciousnesses and all the rest of reality. Tho reached by a very different and more empirical route, the outcome is much the same as that of absolute idealism. It is, like that theory, a sort of pantheism, appealing to the imagination, and easily making alliance with religion. It has indeed, except by a blurring of outlines, no personal comfort to give, no hope to offer that things are better than they seem, or will be better than empirical evidence indicates that they will be. But it is an alluring conception in itself, and it readily soaks up the connotations that hover about the idea of God; undoubtedly it owes thereto its chief elements of tenacity.

Apart from poetry and pious hope, the argument for the conception is the analogy of the general interplay of causal influences throughout the universe with that interplay of influence in the brain which represents an animal consciousness. As the brain is an organism, so may the earth be called an organism, and the solar system, the stellar system, and whatever more inclusive reality there may be. There is then a hierarchy of conscious fields, the smaller fields not being aware of the rest of the larger fields of which they are a part. It is easy for a poetic mind like Fechner's to make this conception seem very plausible. But the actual argument reduces to the analogy between the organic unity of the brain and that of the larger units.

What it ignores, however, is the *difference* between the unity which the brain-process has and the unity which exists between the brain-process and the rest of the world. Why does our consciousness stand out in a sort of isolation from the rest of the world? Simply because the kind of unity that exists between *all* the elements of reality is not enough of a unity to weld those other elements into one consciousness with it. The organic

unity of the brain-process is a very much *greater* unity than exists between the world-elements in general.

Moreover, it is not difficult to see that the effective unity of the brain-process is created largely by the formation of memories—without which there could be nothing like what we call consciousness. The earth, and the universe, have no mechanism of memory—except in these little corners that we call brains. They have no mechanism of perception, knowledge, emotion, thought, or will—that is, they have not the physical mechanism that represents, on our theory, what we experience, in their fullness of reality, as these conscious states. In what sense then *could* we call the sum total of world-events a *consciousness*? It would be very different indeed from what we do empirically call a consciousness. Nor would it be something ‘higher’ than consciousness. The physical events outside the brain are simpler and less delicately varying than those within the brain; if our theory is correct, the life out there must be a less developed, less complex, less delicately varying life. The universe is superior in *size* to the brain; but these little bits of the universe are her highest developed bits; the consciousness of animals, and finally that of man, is *qualitatively* superior to the life of the rest of the universe.

At any rate, the assumption that the realities pictured by the physical motions that make up the physical earth, or the universe, are all joined together in one field of consciousness, as the elements within a human consciousness are joined, is a flat contradiction of the actual state of things. Whatever might be inferred to be the case, such is *not* the case. The observable situation is precisely that in which one field of consciousness is *separate* from other fields, and separated from them by other realities which do not enter into either. A vast consciousness might conceivably exist somewhere, but it would not be these realities; for the fact of separateness is as sure a fact for these realities as the fact of togetherness between the elements in a consciousness. If the togetherness isn’t felt, it doesn’t exist; for it is of a *felt*-togetherness that we are speaking. If we don’t *feel* ourselves and other minds as one conscious whole, then we *are* not one conscious whole. Sensations and memories in my consciousness are not available for yours, except through the indirect

processes of expression and perception. We are doomed to be eternally separate, each shut up to his own data, or 'states.'

The possibility of the belief in the larger consciousness rests on an incomplete analysis of the 'self.' The world-consciousness is thought of as a 'self' or 'soul' or 'Being' that 'knows' or 'feels' the world-events, as 'you' and 'I' 'know' our conscious events. Thus our conscious events exist twice, as known by us, and as known or felt by the world-soul. Now we have not space to undertake an analysis of the 'self' here. We may only say, rather dogmatically, that 'selves' and 'souls' and 'knowers' are vanishing with 'matter' and 'substance' and the other scholastic entities. The 'self' is nothing but a given consciousness, the sum of its events, or a special set of its events. That there is any other 'self' or 'ego' or 'soul' is without evidence, and is a belief fast dying out. Consciousness, as Professor Strong says, "exists in its own right." And if this is so, if our consciousness is not our perception of certain events, which the world-soul might also perceive, and perceive in a relation of togetherness with other events; if our consciousness *is* those events, and is all there is to those events; then any events existing in a world-consciousness would be *other* events; a reduplication of these, perhaps, with the relation of togetherness with other events thrown in, but not these events themselves. That there is such a reduplication is of course without shadow of evidence.

A plausible support to Fechner's theory might be found in some of Dr. Morton Prince's experiments. I am not aware that any of the pantheistic panpsychists have adduced this sort of evidence, but if we are to be impartial we must admit that it seems at first sight to establish the reality of just the situation which we have thrown out of court as impossible—that wherein a larger inclusive consciousness contains in a relation of felt-togetherness smaller consciousnesses which yet feel themselves to be separate. The experiments I mean are those in dual personality, wherein personality A seems to be aware of personality B's doings and feelings, while B remains always in ignorance of A's. A natural statement of the case would be that A is a larger personality, including B; that B is a smaller personality, without knowledge of that part of A beyond the boundaries of B; that these two personalities coexist. Now it seems to me that the first two of

these statements describe the facts as given, but that the third is an illegitimate inference. It would be (if not at bottom a self-contradictory statement) one possible explanation. Another would be in terms not of coexisting but of alternating personalities. When I talk with B, a certain part of the total field which we may call X has been cut off; the field has shrunk; the memories lying within the X portion are not available. The cause will no doubt be presently learned, in physical terms; the result is that the potential memories and the habits stored in the B portion of the total field (or brain-process) interwork with one another, but without those other habits, memories, elements of character, stored in the X portion. When I talk with A, however, the split has ceased. I have the whole field, with all the memories available of both the B and the X portions. Such cases of contracting and enlarging personality are exceedingly common, and it is in such terms that we should explain, no doubt, many of our changes of mood and disposition. The peculiarity of the pathological cases is that in them the incoming and outgoing nerve-currents (or at least those through which the observer holds communication with the patient) after the shift of personality, reach and come from another region of the brain. There has been a switch of the currents, and that makes the sense of a dual personality. The centers now directly communicated with have desires and feelings affiliated with them other than those over in the B portion, which are nevertheless within communication. In other words, two sets of memory images and associations have been developed; when one set is reached by the observer it is in communication with the other set but is the dominant set and never lets the other set get control; when the second set is communicated with, the first set is shut off and ineffective.

This hastily sketched explanation may not hold. It is given here simply as showing the possibility of other explanations of the multiple personality cases than that which would make in favor of the Fechnerian hypothesis. The direct evidence against that hypothesis, in the fact that we actually *find* ourselves separate—so far as the relation which constitutes a consciousness is concerned—and in the study of the nature of the brain-processes that represent a consciousness and failure to find similar processes and a similar organic unity elsewhere, seems conclusive.

Leibniz went to the other extreme, and called every 'monad' a soul. In terms of modern science, we might hold every electron or prime-atom a mind. But there is nothing to indicate that there is an arch-atom in our brains which carries the human consciousness in it. On the contrary, the empirical concomitance between different parts of the cortex and different elements of consciousness, and the striking parallelism between the laws of consciousness and the laws that hold between different elements of an extended brain-process, point to our identification of the human consciousness with such an extended and organically united brain-process. Since no such organic union exists outside the brain we cannot suppose that there exists anywhere else such an organic whole as a consciousness. The outer reality is probably better described, in Clifford's language, as 'mind-dust,' or in Strong's, as 'infra-experiences.' Schopenhauer's description of it as 'will' seems rather arbitrary, even when we admit that we cannot mean what we usually call will, with its conceptual accompaniments and prevision. Effort, striving, may form a considerable element in the life about us; but there seems no good reason for excluding qualities of other types. For all we know, the qualities of things *may* be such familiar ones as we should call color, heat, etc. Or all their qualities may be such as we have no names for. We cannot know at present.

Tho not aggregated into consciousnesses, the realities that make up the universe exist together in another sense. They are together in what we call space, and succeed one another in what we call time. Not, we may hasten to add, in the space which is a quality of our visual data, or the time which is a quality of our present data. Time and space in this sense are qualities of our consciousness, data present in our fields, and not that order in which existences stand related to one another. Space and time in the latter sense never enter within experience. The order of existences is a fact *about* those existences, not a quality of them. The bit of space that we have as a perception-datum can be analyzed into qualities existing in our field of data, or consciousness; it represents the real order in which those realities exist which our perception-data represent, but it *is* not that real order. It is of course exactly so with time; the sense of duration that we feel *now* is a quality of our experience, representative of a real succes-



sion of experiences, but not identical with the fact of that succession. Things really exist in a definite order, which we may call the space-time order. Causal influences find their way about in certain definite ways only in this order; and what the quality of an existence is depends partly upon its place in that order. When we move we actually change our place in this order. Our theory does not do away with this order. Each real event takes place in its particular place in time and space, as physical science shows us. But the problem of individuation arises only in the case, it would seem, of animal brains. Here, owing to the peculiar mechanism developed, a set of memories becomes available from any part of a total process, and what we call a consciousness appears. It is to be hoped that Professor Strong, in the book on which he is now engaged, *The Origin of Consciousness*, will throw further light on these matters.

VITA

(In compliance with the requirements for Doctors' dissertations.)

Durant Drake was born at Hartford, Connecticut, Dec. 18, 1878. He attended Harvard University 1896-1900 and 1901-3; Columbia University 1910-11. Previous degrees: A.B. Harvard 1900, A.M. Harvard 1904.

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